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FRIDAY, JULY 12, 1895.

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THE SUN.

"It is because the secrets of the Sun," says Mr. Lockyer, "include the cipher in which the light messages from external Nature in all its vastness are written, that those interested in the 'new learning,' as the chemistry of space may certainly be considered, are anxious to get at and possess them." But even more significant to dwellers on the Earth are the heat radiations of the Sun, because they are determi-

nant in all animal and vegetable life, and are the original source of nearly every form of terrestrial energy recognized by mankind. Through the action of the solar heat-rays the forests of palæozoic ages were enabled to wrest carbon from the atmosphere and store it in forms afterward converted by Nature's chemistry into peat and coal; through processes incompletely understood, the varying forms of vegetable life are empowered to conserve, from air and soil, nitrogen and other substances suitable for and essential to the life maintenance of animal creatures. Breezes operant in the production of rain and in keeping the air from hurtful contamination; the energy of water, in stream and dam and fall; trade winds facilitating commerce between the continents; oceanic currents modifying coast climates (and no less the tornado, the waterspout, the typhoon, and other manifestations of natural forces, excepting earthquakes, frequently destructive to the works of man), all are traceable primarily to the heating power of the Sun's rays acting upon those readily movable substances of which the Earth's exterior is in part composed.

The Sun, cosmically speaking, is simply a star, but the nearest fixed star is 275,000 times more remote ; so that the Sun's vastly greater brightness is, for the most part, due to mere proximity. Still, the distance of the Sun is by no means easy to conceive or